

IN THE CLAIMS:

1. A method of melt spinning a group of
multifilament yarns from a heated polymer melt comprising
5 the steps of

extruding the melt through a plurality of nozzles
arranged in a linear arrangement so as to define a
plurality of linearly arranged downwardly advancing
groups of filaments, and

10 withdrawing the groups of filaments from the nozzles
so that the groups of filaments advance

a) through a precooling zone wherein the
filaments are cooled without significant
solidification, and then

15 b) through an aftercooling zone wherein the
filaments are further cooled by the action of a
coolant flow which is directed into the path of the
groups in such a manner that the filaments solidify
in a solidification range within the aftercooling
zone, with the coolant flow having a predetermined
20 flow velocity for influencing the tension imparted
to the filaments.

2. The method of claim 1, wherein the coolant flow
25 is accelerated in an acceleration zone within the
aftercooling zone to the predetermined flow velocity, and
the solidification range of the filaments extends within
the acceleration zone of the aftercooling zone or
immediately downstream thereof.

30 3. The method of claim 2, wherein the flow velocity
of the coolant flow upstream of the solidification range
of the filaments is substantially equal to or greater
than the advancing speed of the filaments.

4. The method of claim 1, wherein the cooling of
the filaments within the precooling zone is achieved by a
coolant which is controlled such that the position of the
solidification range of the filaments within the
aftercooling zone is maintained in a predetermined
desired range of the aftercooling zone.

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10 5. The method of claim 4, wherein the temperature
of the coolant is controlled before entering the
precooling zone.

15 6. The method of claim 5, wherein the volume flow
of the coolant is controlled before entering the
precooling zone.

7. The method of claim 1, wherein the coolant flow
in the aftercooling zone is generated by a suction
effect.

20 8. The method of claim 1, wherein the coolant flow
in the aftercooling zone is generated by a blowing
effect.

25 9. The method of claim 1, wherein the coolant flow
in the aftercooling zone is generated at least in part
from a coolant leaving the precooling zone.

30 10. The method of claim 1, wherein the coolant flow
is generated from a coolant leaving the precooling zone
and from a coolant supplied downstream of the precooling
zone.

11. The method of claim 1, wherein in the precooling zone a coolant is supplied to the filaments by a suction effect or by a blowing effect.

5 12. The method of Claim 1, wherein each group of filaments is gathered to a yarn which is laid to form a spun-bonded nonwoven yarn after the solidification of the filaments.

10 13. The method of Claim 1, wherein the groups of filaments are gathered to a tow after the solidification of the filaments, and then deposited in a can, or cut and pressed into a bale.

15 14. The method of Claims 1, wherein after the solidification of the filaments the groups of filaments are gathered into a plurality of individual yarns and wound to packages.

20 15. The method of Claim 1, wherein the polymer melt is selected from the group consisting of polyester, polyamide, or polypropylene.